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No. 67—1914.

British Engineering Standards Association.

(*Incorporated 1918.*)

FORMED IN 1901 AS THE ENGINEERING STANDARDS COMMITTEE
BY
THE INSTITUTION OF CIVIL ENGINEERS.
THE INSTITUTION OF MECHANICAL ENGINEERS.
THE INSTITUTION OF NAVAL ARCHITECTS.
THE IRON AND STEEL INSTITUTE.
THE INSTITUTION OF ELECTRICAL ENGINEERS.

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BRITISH

STANDARD SPECIFICATION

FOR

TWO- AND THREE-PLATE CEILING ROSES.

LONDON:
PUBLISHED FOR THE ASSOCIATION BY CROSBY LOCKWOOD & SON,
7, STATIONERS' HALL COURT, LUDGATE HILL, E.C. 4; AND 5, BROADWAY, LONDON, S.W.1;
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March, 1919.

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The following are Lists of Members of the Sectional Electrical Committee, and also of the Sub-Committee on Electrical Plant Accessories which has been entrusted with the drafting of the British Standard Specification for Two- and Three-Plate Ceiling Roses.

SECTIONAL ELECTRICAL COMMITTEE

WHICH IS ALSO THE

BRITISH NATIONAL COMMITTEE

OF THE

INTERNATIONAL ELECTROTECHNICAL COMMISSION.

August, 1914.

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* Chairman, British National Committee.
† Hon. Secretary, British National Committee
** Since deceased.

SUB-COMMITTEE ON ELECTRICAL PLANT ACCESSORIES.

August, 1914.

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War Office, Mr. G. H. Roberts.
Home Office, Mr. R. Nelson; Mr. G. Scott Ram.
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The Sub-Committee has also been assisted in the preparation of this Specification by Mr. F. M. Chapman, representing the B.E.A.M.A.

PREFACE.

The Sub-Committee on Electrical Plant Accessories was appointed at a Meeting of the Sectional Committee on Electrical Plant held on January 15th, 1903, which appointment was confirmed by the Main Committee on December 8th, 1904.

The present Specification relates to Ceiling Roses. In the case of these and certain similar fittings or "accessories," commonly used in connection with domestic and factory installations, and which are readily breakable, it is a matter of considerable importance, on the score of convenience and safety, to be able easily to replace a damaged fitting, or its cover, without making any alteration to the connecting wires or to the backboard or other support for the fitting.

These objects are intended to be secured by this Specification, which provides the necessary interchangeability without unduly hampering the design, so that the new fitting need not be obtained from the manufacturer of the original fitting.

The nomenclature adopted in the Specification is that of the Wiring Rules issued by the Institution of Electrical Engineers.

The Committee desire to acknowledge the cordial co-operation which they have received from the British Electrical and Allied Manufacturers' Association; this has enabled them to obtain the views of Fittings Manufacturers far more satisfactorily than would have been the case, had they been obliged to communicate directly with individual firms, and it has secured the adoption of dimensions and patterns which it is hoped will be generally acceptable to the industry.

The Sub-Committee are now actively engaged on the standardisation of many other similar fittings (among them 2- and 3-pin plugs), and it is hoped that most of the fittings in general use in electrical installations will be standardised at an early date.

It is considered that the convenience of those concerned will best be met by issuing a number of separate Specifications so as to bring the standardisation into force as soon as possible, rather than by waiting until the whole of the work is accomplished, and then publishing simultaneously a complete set of Specifications.

This Report was adopted by the Sectional Electrical Committee at their meeting held on June 12th, 1914.

This Report was approved by the Main Committee at their meeting on July 16th, 1914.

C. H. WORDINGHAM,

Chairman of Sub-Committee on Electrical Plant Accessories.

Note.— *The Association desires to call attention to the fact that this Specification is intended to include the technical provisions necessary for the supply of the material herein referred to, but does not purport to include all the necessary provisions of a Contract.*

BRITISH

STANDARD SPECIFICATION

FOR

TWO- AND THREE-PLATE CEILING ROSES.

All two- and three-plate ceiling roses for use up to 250 volts with currents not exceeding 5 amperes and purporting to be British Standard shall conform in every respect to the following Specifications.

TWO-PLATE CEILING ROSE.

BASE.

Material.

1. The base shall be of vitreous material.[1]

Flange.

2. The flange of the base shall be $2\frac{1}{2}$ ins. diameter and $\frac{3}{8}$ in. thick.

Recess.

3. A recess shall be provided at the back not less than $\frac{1}{16}$ in. nor more than $\frac{1}{8}$ in. deep to ensure proper seating. The holes for the fixing screws must not break into this recess.

Screw Thread.

4. The threaded portion to take the cover shall be screwed with a thread of Whitworth form having eight threads to the inch. It shall have a full diameter of 2 ins. and be $\frac{7}{16}$ in. high.

Centres of Holes for Fixing Screws.

5. Two holes for the fixing screws shall be provided set on a diameter 2 ins. apart centre to centre.

Centres of Holes for Hard Wires.

6 Two holes for hard[2] wires shall be provided set on a diameter not more than $1\frac{1}{4}$ in. nor less than $1\frac{1}{8}$ in. apart centre to centre.

[1] By "vitreous material" is to be understood porcelain or similar material which after twenty-four (24) hours' immersion in water does not increase in weight more than one-half per cent. ($\frac{1}{2}$%) after all moisture has been removed from its surface.

[2] See Wiring Rules of the Institution of Electrical Engineers, 1911, Rule 53.

Gauging.

7. These holes for the fixing screws and for hard wires, before the brass parts are mounted, shall permit the insertion, from the back, of the pins of a gauge constructed as shown in Fig. I. (See Plate I.)

Size and Shape of Holes for Fixing Screws.

8. The holes for the fixing screws shall be suitable for No. 6 wood screws and shall have a maximum diameter of $\frac{3}{16}$ in. at the front and $\frac{9}{32}$ in. at the back and a maximum diameter of countersink of $\frac{11}{32}$ in.

Size and Shape of Holes for Hard Wires.

9. The holes for the hard wires shall have a diameter of not less than $\frac{7}{32}$ in., with recesses at the back of not less than $\frac{5}{8}$ in. by $\frac{5}{16}$ in. at the opening, and not less than $\frac{1}{2}$ in. by $\frac{1}{4}$ in. at a depth of $\frac{5}{16}$ in. measured from the seating surface.

Separating Partition.

10. A separating partition between the terminal plates shall be provided, and shall be not less than $\frac{7}{16}$ in. high by $\frac{3}{16}$ in. thick with not less than two holes of $\frac{3}{16}$ in. diameter for the flexible wire, and so placed that a portion of the partition is interposed between the hole for each flexible wire and the metal work of opposite polarity.

COVER.

Material.

11. The cover shall be of vitreous material.[1]

Fit of Cover.

12. The cover shall be capable of being screwed firmly down so as to bear evenly on the flange of the base.

Clearance inside Cover.

13. The clearance from the top of the separating partition to the inner side of the cover shall be not less than $\frac{3}{16}$ in.

Hole in Cover.

14. The diameter of the hole shall be not less than $\frac{5}{16}$ in. and the edges of the hole shall be rounded at both ends so as to prevent abrasion of the flexible wire.

METAL WORK.

Material.

15. All metal work shall be of suitable brass.

Terminal Plates.

16. The terminal plates shall be not less than $\frac{1}{16}$ in. thick and shall each be provided with two upright lugs $\frac{5}{16}$ in. apart and $\frac{1}{8}$ in. high to prevent the flexible wire from spreading. One plate shall have

[1] See Note 1 on page 7.

its ends straight and normal to the curved portion, the other plate shall have its ends rounded. These plates may be secured from the front or the back ; if from the front the fixing shall be by means of brass wood-screws threaded into the base.

Type and Size of Terminals.

17. The terminals for the hard wires shall be of Pillar Type with side clamping screws, and shall be either rivetted to the plates or held down to them in any manner not less secure, and the diameter of the hole in each terminal shall be not less than 172 mils, and the thickness of the wall where the clamping screw passes through shall be not less than 68 mils.

Position and Size of Clamping Screws in Terminals.

18. Each side clamping screw securing the wire in the terminal shall be at a height of $\frac{5}{32}$ in. from the centre to the upper face of the plate. The clamping screws shall be 4 B.A. thread with cheese heads in accordance with Report No. 57[1], and of sufficient length under the head to extend to the far side of the wire hole in the terminal. The positions of these screws shall be such that the screws are readily accessible to the screwdriver, and that when drawn out to expose the full wiring holes clear of obstruction the screws shall not foul the separating partition or the clamping screws for the flexible wires.

Clamping Screws for Flexible Wires.

19. The screws through the washers for clamping the flexible wires shall be 5 B.A. thread with cheese heads in accordance with Report No. 57[1], and not less than $\frac{13}{32}$ in. long under head, and the head not less than $\frac{7}{32}$ in. diameter by $\frac{3}{32}$ in. thick.

Washers.

20. The washers for clamping the flexible wires shall be not less than 300 mils diameter by 31 mils thick with a hole 130 mils diameter.

THREE-PLATE CEILING ROSE.

BASE.

Material.

1. The base shall be of vitreous material.[2]

Flange.

2. The flange of the base shall be $2\frac{1}{2}$ ins. diameter and $\frac{3}{8}$ in. thick.

[1] Report on British Standard Heads for Small Screws issued in December, 1911.

[2] See Note 1 on page 7.

Recess.

3. A recess shall be provided at the back not less than $\frac{1}{16}$ in., nor more than $\frac{1}{8}$ in. deep to ensure proper seating. The holes for the fixing screws must not break into this recess.

Screw Thread.

4. The threaded portion to take the cover shall be screwed with a thread of Whitworth form having eight threads to the inch. It shall have a full diameter of 2 ins. and be $\frac{7}{16}$ in. high.

Centres of Holes for Fixing Screws.

5. Two holes for the fixing screws shall be provided set on a diameter 2 ins. apart centre to centre.

Centres of Holes for Hard Wires.

6. Three holes for hard[1] wires shall be provided equally spaced and set on a circle of diameter not more than $1\frac{1}{4}$ ins. nor less than $1\frac{1}{8}$ ins.

Gauging.

7. These holes for the fixing screws and hard wires, before the brass parts are mounted, shall permit the insertion, from the back, of the pins of a gauge constructed as shown in Fig. 2. (See Plate I.)

Size and Shape of Holes for Fixing Screws.

8. The holes for the fixing screws shall be suitable for No. 6 wood-screws and shall have a maximum diameter of $\frac{3}{16}$ in. at the front and $\frac{9}{32}$ in. at the back and a maximum diameter of countersink of $\frac{11}{32}$ in.

Size and Shape of Holes for Hard Wires.

9. The holes for the hard wires shall have a diameter of not less than $\frac{7}{32}$ in. with recesses at the back of not less than $\frac{5}{8}$ in. by $\frac{5}{16}$ in. at the opening, and not less than $\frac{1}{2}$ in. by $\frac{1}{4}$ in. at a depth of $\frac{5}{16}$ in. measured from the seating surface.

Separating Partitions.

10. Separating partitions between the terminal plates shall be provided, and shall be not less than $\frac{7}{16}$ in. high by $\frac{3}{16}$ in. thick with not less than three holes each of $\frac{3}{16}$ in. diameter, one in each partition, for the flexible wire.

COVER.

Material.

11. The cover shall be of vitreous material.[2]

Fit of Cover.

12. The cover shall be capable of being screwed firmly down so as to bear evenly on the flange of the base.

---

[1] See Wiring Rules of the Institution of Electrical Engineers, 1911, Rule 53.

[2] See Note 1 on page 7.

Clearance inside Cover.

13. The clearance from the top of the separating partition to the inner side of the cover shall be not less than $\frac{3}{16}$ in.

Hole in Cover.

14. The diameter of the hole shall be not less than $\frac{3}{8}$ in. and the edges of the hole shall be rounded at both ends so as to prevent abrasion of the flexible wire.

METAL WORK.

Material.

15. All metal work shall be of suitable brass.

Terminal Plates.

16. The terminal plates shall not be less than $\frac{1}{16}$ in. thick, and shall each be provided with two upright lugs $\frac{5}{16}$ in. apart and $\frac{1}{8}$ in. high to prevent the flexible wire from spreading. One plate shall have its ends straight and normal to the curved portion; the second shall have its ends rounded: the third shall have a nick in its outer edge not less than $\frac{1}{16}$ in. wide by $\frac{1}{16}$ in. radial depth. These plates may be secured from the front or the back; if from the front the fixing shall be by means of brass wood-screws threaded into the base. The three plates shall be so disposed that when the line joining the centres of the fixing holes is horizontal, and its left hand end passes through the nicked plate, the plate with rounded ends lies above the line and the plate with straight ends below it as seen by an observer looking from the front as shown in Plate II. (See Note on page 13).

Type and Size of Terminals.

17. The terminals for the hard wires shall be of Pillar Type with side clamping screws, and shall be either rivetted to the plates, or held down to them in any other manner not less secure, and the diameter of the hole in each terminal shall not be less than 172 mils, and the thickness of the wall where the clamping screw passes through shall be not less than 68 mils.

Position and Size of Clamping Screws in Terminals.

18. Each side clamping screw securing the wire in the terminal shall be at a height of $\frac{5}{32}$ in. from the centre to the upper face of the plate. The clamping screws shall be 4 B.A. thread with cheese heads in accordance with Report No. 57[1] and of sufficient length under the head to extend to the far side of the wire hole in the terminal. The positions of these screws shall be such that the screws are readily accessible to the screwdriver, and that when drawn out to expose the full wiring holes clear of obstruction the screws shall not foul the separating partitions or the clamping screws for the flexible wires.

[1] Report on British Standard Heads for Small Screws issued in December, 1911.

Clamping Screws for Flexible Wires.

19. The screws through the washers for clamping the flexible wires shall be 5 B.A. thread with cheese heads in accordance with Report No. 57[1] and not less than $\frac{13}{32}$ in. long under head, and the head not less than $\frac{7}{32}$ in. diameter by $\frac{3}{32}$ in. thick.

Washers.

20. The washers for clamping the flexible wires shall be not less than 300 mils diameter by 31 mils thick with a hole 130 mils diameter.

[1] Report on British Standard Heads for Small Screws issued in December, 1911.

Note as to reason for distinguishing the different terminal plates.

The colour of the covering of wires attached to a ceiling rose, when once it is fixed in position, cannot usually be seen, and, in consequence, the various terminal plates cannot be identified, unless marked in some distinctive manner. The need for such identification is often of considerable importance, *e.g.*, when one pole of an installation is earthed, in which case all switches, including key sockets, must be on the insulated pole; this is particularly important when such articles as electric irons are attached to a lampholder by means of an adapter. In the case of three-plate ceiling roses, which are used when it is necessary to earth a lampholder under Factory Act Electricity Regulations, it is essential to know which plate is connected to earth, and, in the absence of any means of identification, this can only be ascertained by testing.

For the above reasons the Committee have specified that each plate shall be of a different shape from the other two.

The choice of securing identification by means of difference in shape, rather than difference in colour, is due to the fact that ceiling roses are used for a multiplicity of purposes; in some instances wires of one pole only are connected to all three plates (e.g., when a pendant switch is employed for switching from one of two or more points); in some cases there are two poles and in others two poles and an earth. Hence no system of colouring could suit all purposes, and the adoption of colours as the distinguishing feature might easily be misleading. By adopting a difference in shape, means are provided for similarly connecting all ceiling roses used for a like purpose in an installation, and each erector can make his own convention as to the exact signification of the plates at time of erection.

BRITISH ENGINEERING STANDARDS ASSOCIATION.
GAUGES.

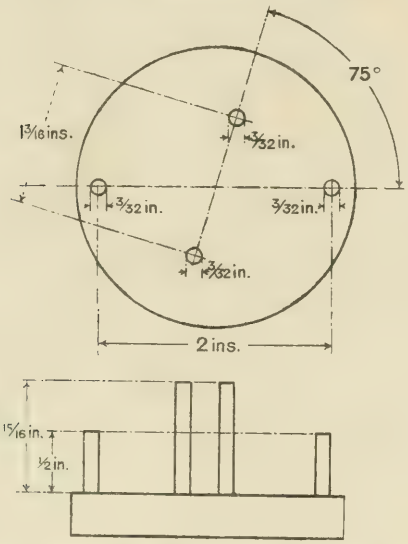

Fig. 1. GAUGE FOR TWO-PLATE CEILING ROSE.

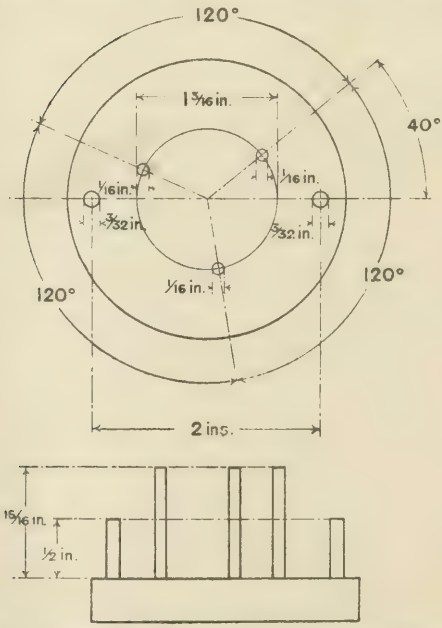

Fig. 2. GAUGE FOR THREE-PLATE CEILING ROSE.

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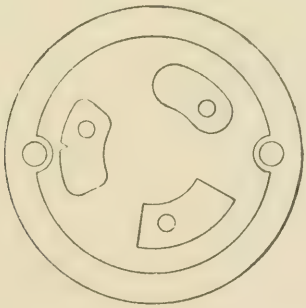
DIAGRAM ILLUSTRATING RELATIVE POSITIONS OF TERMINAL PLATES



THREE-PLATE CEILING ROSE.

British Engineering Standards Association.

PRICE LIST

OF

BRITISH STANDARD SPECIFICATIONS AND REPORTS.

MARCH, 1919.

(This List cancels all previous Lists.)

NOTE.—*A number of the Publications of the Association are being issued in French, Italian, Spanish and Portuguese. The majority of the English Editions and all the Foreign Translations (which also include the English text) are being published in octavo form, and will be available at 1/- net per copy or its equivalent in Foreign moneys.*

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